March 31, 2003

Mr. Rick Carlson
Lime-O-Sol Company
P. O. Box 395
Ashley, IN 46705

Dear Mr. Carlson:

Re: Exempt Construction and Operation Status,
033-16854-00085

The application from Lime-O-Sol Comapny, received on February 28, 2003, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following emission units, to be located at 101 South Parker Drive, Ashley, Indiana, is classified as exempt from air pollution permit requirements:

1. Twenty-eight (28) natural gas-fired space heaters, with a total maximum heat input capacity of 4.1 mmBtu per hour.

2. One (1) household cleaning product bottling process, capacity 50,415 lb/hr, vented back to reservoir tanks.

3. The following storage tanks:

Vertical Fixed Roof Dome	Material	Capacity (gallons)
ST-1	Phosphoric Acid	4550
ST-2	Butyl Cellosolve	6000
ST-3	Phosphoric Acid	3800
ST-4	Hydrochloric Acid	15250
ST-5	Hydrochloric Acid	7050
ST-6	Hydrochloric Acid	5750
ST-7	Hydrochloric Acid	15250
ST-8	Isopropyl Alcohol	3200

4. The following water storage tanks:

	Material	Capacity (gallons)
WT-1	Deionized water	1050
WT-2	Deionized water	1050
WT-3	Deionized water	1050

5. The following batch tanks for glass and vanity cleaners:

Vertical Fixed Roof Dome	Material	Capacity (gallons)
BT-1 (modified)	Blends (RLC products)	2000
BT-2 (modified)	Blends (20.6% HCl)	2000
BT-3 (modified)	Blends (20.6% HCl)	2000

6. The following reservoir tanks:

Vertical Fixed Roof Dome	Material	Capacity (gallons)
RT -1 (Rotonics) (modified)	4% Butyl Cellosolve	1200
RT-2 (modified)	Waste Water	1200
RT-3 (modified)	21% HCl	1200
RT-4 (modified)	12% HCl	1200
RT-5 (modified)	21% HCl	1200
RT-6 (modified)	21% HCl	1200
RT-7 (modified)	Phosphoric Acid	1200
RT-8 (modified)	15% HCl	1200
RT-9 (modified)	4% Butyl Cellosolve	1200
RT-10 (modified)	4% Butyl Cellosolve	1200
RT-11 (modified)	RLC	1200
RT-12 (modified)	RO Water	1,500

RT-13 (modified)	RO Water	1,500
RT-14 (modified)	RO Water	1,000

7. The following storage tanks for cleaning products:

Vertical Fixed Roof Dome	Material	Capacity (gallons)
HCl - A	32% Hydrochloric Acid	20,000
HCl - B	32% Hydrochloric Acid	20,000
Tank I	IPA (Isopropyl Alcohol)	3,000
Tank J	Butyl Cellosolve	6,000
Tank F	Phosphoric Acid	12,000
Tank G	Phosphoric Acid	12,000
Bay 8 #1	Uric Acid	2,000
Bay 8 #2	Uric Acid	2,000
Bay 8 #3	Uric Acid	2,000
Bay 8 #4	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #5	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #6	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #7	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #8	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #9	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #10	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #13	Premix	1,000
Bay 8 #14	Premix	500
Bay 8 #15	Premix	75
Bay 8 #16	Perfume	200
Bay 8 #17	L60B	300

Bay 8 #18	Perfume	200
BT -#4 (Bay 9)	Butyl Cellosolve	2,000
BT - #5 (Bay 9)	20.6 % Hydrochloric Acid	2,000

BT - #6 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #7 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #8 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #9 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #10 (Bay 9)	20.6% Hydrochloric Acid	2,000
Bay 12-A	20.6% Hydrochloric Acid	2,000
Bay 12-B	16% Hydrochloric Acid	2,000

8. The following packaging lines:

   (a) Packaging line #1 for hydrochloric acid based cleaning products, with a maximum capacity of 16,632 pounds per hour.

   (a) Packaging line #2 for butyl cellosolve and/or isopropyl alcohol based cleaning products, with a maximum capacity of 11,088 pounds per hour.

   (b) Packaging line #3 for hydrochloric acid based cleaning products, with a maximum capacity of 19,404 pounds per hour.

   (c) Packaging line #6 for hydrochloric acid based cleaning products, with a maximum capacity of 2,217.6 pounds per hour.

   (d) Packaging line #9 for hydrochloric acid based cleaning products, with a maximum capacity of 19,404 pounds per hour.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

   (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

   (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(2) Any change or modification which may increase the potential to emit a combination of HAPs or VOC to 25 tons per year or a single HAP to 10 tons per year from this source shall require approval

from IDEM, OAQ prior to making the change.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

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cc: File - Dekalb County
Dekalb County Health Department
Air Compliance - Doyle Houser
Northern Regional Office
Permit Tracking
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name:	**Lime-O-Sol**
Source Location:	**101 South Parker Drive, Ashley, IN 46705**
County:	**Dekalb**
SIC Code:	**2842**
Registration No.:	**033-16854-00085**
Permit Reviewer:	**Madhurima D. Moulik**

The Office of Air Quality (OAQ) has reviewed an application from Lime-O-Sol relating to the construction and operation of a household cleaning products and calcium and lime removal products formulation and bottling operation.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

(a) Twenty-eight (28) natural gas-fired space heaters, with a total maximum heat input capacity of 4.1 mmBtu per hour.

(b) One (1) household cleaning product bottling process, capacity 50,415 lb/hr, vented back to reservoir tanks.

(c) The following storage tanks:

Storage Tanks

Vertical Fixed Roof Dome	Material	Capacity (gallons)
ST-1	Phosphoric Acid	4550
ST-2	Butyl Cellosolve	6000
ST-3	Phosphoric Acid	3800
ST-4	Hydrochloric Acid	15250
ST-5	Hydrochloric Acid	7050
ST-6	Hydrochloric Acid	5750
ST-7	Hydrochloric Acid	15250
ST-8	Isopropyl Alcohol	3200

(d) The following water storage tanks:

Water Storage Tanks

	Material	Capacity (gallons)
WT-1	Deionized water	1050
WT-2	Deionized water	1050
WT-3	Deionized water	1050

(e) The following batch tanks for glass and vanity cleaners:

Blend Tanks

Vertical Fixed Roof Dome	Material	Capacity (gallons)
BT-1 (modified)	Blends (RLC products)	2000
BT-2 (modified)	Blends (20.6% HCl)	2000
BT-3 (modified)	Blends (20.6% HCl)	2000

(f) The following reservoir tanks:

Reservoir Tanks

Vertical Fixed Roof Dome	Material	Capacity (gallons)
RT -1 (Rotonics) (modified)	4% Butyl Cellosolve	1200
RT-2 (modified)	Waste Water	1200
RT-3 (modified)	21% HCl	1200
RT-4 (modified)	12% HCl	1200
RT-5 (modified)	21% HCl	1200
RT-6 (modified)	21% HCl	1200
RT-7 (modified)	Phosphoric Acid	1200

RT-8 (modified)	15% HCl	1200
RT-9 (modified)	4% Butyl Cellosolve	1200
RT-10 (modified)	4% Butyl Cellosolve	1200
RT-11 (modified)	RLC	1200
RT-12 (modified)	RO Water	1,500
RT-13 (modified)	RO Water	1,500
RT-14 (modified)	RO Water	1,000

Unpermitted Emission Units and Pollution Control Equipment

The source also consists of the following unpermitted facilities/units:

(a) The following storage tanks for cleaning products:

Storage Tanks

Vertical Fixed Roof Dome	Material	Capacity (gallons)
HCl - A	32% Hydrochloric Acid	20,000
HCl - B	32% Hydrochloric Acid	20,000
Tank I	IPA (Isopropyl Alcohol)	3,000
Tank J	Butyl Cellosolve	6,000
Tank F	Phosphoric Acid	12,000
Tank G	Phosphoric Acid	12,000
Bay 8 #1	Uric Acid	2,000
Bay 8 #2	Uric Acid	2,000
Bay 8 #3	Uric Acid	2,000
Bay 8 #4	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #5	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #6	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #7	4% Butyl Cellosolve, 5% IPA	2,000

Bay 8 #8	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #9	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #10	4% Butyl Cellosolve, 5% IPA	2,000
Bay 8 #13	Premix	1,000
Bay 8 #14	Premix	500
Bay 8 #15	Premix	75
Bay 8 #16	Perfume	200
Bay 8 #17	L60B	300
Bay 8 #18	Perfume	200
BT -#4 (Bay 9)	Butyl Cellosolve	2,000
BT - #5 (Bay 9)	20.6 % Hydrochloric Acid	2,000
BT - #6 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #7 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #8 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #9 (Bay 9)	20.6% Hydrochloric Acid	2,000
BT - #10 (Bay 9)	20.6% Hydrochloric Acid	2,000
Bay 12-A	20.6% Hydrochloric Acid	2,000
Bay 12-B	16% Hydrochloric Acid	2,000

(b) The following packaging lines:

(1) Packaging line #1 for hydrochloric acid based cleaning products, with a maximum capacity of 16,632 pounds per hour.

(2) Packaging line #2 for butyl cellosolve and/or isopropyl alcohol based cleaning products, with a maximum capacity of 11,088 pounds per hour.

(3) Packaging line #3 for hydrochloric acid based cleaning products, with a maximum capacity of 19,404 pounds per hour.

(4) Packaging line #6 for hydrochloric acid based cleaning products, with a maximum capacity of 2,217.6 pounds per hour.

(5) Packaging line #9 for hydrochloric acid based cleaning products, with a maximum capacity of 19,404 pounds per hour.

Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

(a) Exemption No.: 151-4671-00040, issued on July 28, 1995.

In Exemption No. 151-4671-00040, the source was listed in error as being located in Steuben County. The source is located in Dekalb County.

Enforcement Issue

There are no pending enforcement actions.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
STV-1	Storage Tank	10	0.33	-	50
STV-I	IPA Vent	16	0.5	-	50
STV-H	Relief Vent	18	0.17	-	50
STV-J	Relief Vent	18	0.17	-	50
STV-F	Relief Vent	18	0.17	-	50
STV-G	Relief Vent	18	0.17	-	50
PVB -1	Basement Tanks	26	0.5	-	70
PVB-1	Bay 8 (Tank 5-9)	24	0.17	582	70
PVB-2	Bay 8 (Tank 10)	24	0.17	-	70
PVB-3	Bay 8 (Vitech Tank)	24	0.17	-	70
PV9-1, PV9-4	Tanks 1 and 4 4% Butyl Cell	26	0.33	-	70
PV9-2, PV9-3	Tanks 2 and 3 21% HCl	26	0.33	-	70
PV9-5, PV9-6	Tanks 5 and 6 21% HCl	26	0.33	-	70
PV9-7, PV9-8	Tanks 7 and 8 21% HCl	26	0.17	-	70
PV9-9, PV9-10	Tanks 9 and 10 21% HCl	26	0.17	-	70
PV12-1	Bay 12 (Line 9) Fill Enclosure	24	0.75	582	70
PV12-2	Bay 12 Process Tanks	18	0.17	-	70
GV-1, GV-2	Warehouse Roof Exhaust	16	3	3,200	70
GV-3	Line #3 Side Exhaust	10	3	3,200	70
GV-4, GV-5	Bay 12 Side Exhausts	10	3	3,200	70

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on February 28, 2003.

Emission Calculations

Potential to Emit (PTE) of unpermitted emission units:

(1) Storage Tanks: Emissions based on Tanks 4.0 Emissions Reports (submitted by source)

HCl - A (storing 32% hydrochloric acid, which is a HAP): **HAP** emissions = **1.09 tpy**

HCl - B : **HAP** emissions = **1.09 tpy**

Tank I (storing isopropyl alcohol): **VOC** emissions = 68.65 lb/yr = **0.03 tpy**

Tank J (butyl cellosolve which is a glycol ether): **VOC** emissions = **HAP** emissions = **0.67 tpy**

Emissions from all other tanks are estimated to be negligible, based on the small storage capacities.

(2) Packaging Lines:

Packaging Line # 1, 3, 6, and 9:

HAP (hydrochloric acid) emissions: The emission rates of hydrochloric acid at room temperature (25^0 C) for 20% and 30% solutions for filling operations were calculated to be negligible based on evaporation rates of HCl (Kawamura & Mackay, 1985). Also, the filling operations at this source are enclosed, with the pumped out air being bubbled through reclaim tanks.

Therefore, **HAP** emissions from filling lines 1, 3, 6, and 9 = **Negligible**

Packaging Line # 2:

VOC (isopropyl alcohol + Butyl Cellosolve) emissions:

Maximum processing capacity = 11,088 lb/hr

Assuming each bottle weight = 2 pounds

Filling capacity = 5500 bottles (approximately)

Evaporation Rate E (kg/s) (Kawamura & Mackay, 1985)

$$= A \times K_M \times (M_w \times Pv) / (R \times T)$$

Where: A = area of evaporating surface (m^2) = 0.01 m^2 (approx) for each bottle

K_M = mass transfer coefficient (m/s)

M_w = molecular weight

Pv = vapor pressure (in Pa)

R = gas constant = 8314 J/kmole ^{0}K

T = Temperature = 293 ^{0}K

K_M = 0.002 x U (m/s) where U = wind speed at surface

U is assumed to be 5 m/s, K_M = 0.002 x 5 = 0.01 m/s

E (kg/s) for isopropyl alcohol =

0.01 m2/s x 0.01 ms x (60.10 kg/k-mole x 4400 Pa)/ (8314 J per K-mole ^{0}K x 293 ^{0}K)

E (kg/s) = 0.000011 kg/s (from one bottle)

Assuming a filling time of 5 sec, E = 0.000055 kg (each bottle)

Emissions of **VOC** = 0.000055 kg/bottle x 5500 bottles/hr x 2.2 lb/kg x 8760 hr/hr/ (2000 tons/lb)

= **2.9** tons per year

E (kg/s) for butyl cellosolve (glycol ether) =

0.01 m2/s x 0.01 ms x (118.2 kg/k-mole x 4400 Pa)/ (8314 J per K-mole ^{0}K x 293 ^{0}K)

E (kg/s) = 0.00002 kg/s (from one bottle)

Assuming a filling time of 5 sec, E = 0.0001 kg (each bottle)

Emissions of **VOC** = **HAP** emissions = **5.6** tons per year

Emissions Summary (Unpermitted Units)	**VOC (tpy)**	**HAPs (tpy)**
Tank Emissions	0.70	2.18 (HCl)
Filling Line	8.5	5.6 (Glycol Ether)

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)[1]
PM	0.2
PM-10	0.2
SO_2	negligible
VOC	9.62
CO	0.4
NO_x	1.8

HAP's	Potential To Emit (tons/year)[1]
HCl	2.18
Butyl Cellosolve	5.92
TOTAL	***8.1***

[1] PTE of permitted emission units is based on Technical Support Document for Exemption No.: 151-4671-00040

(1) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.

(2) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.

County Attainment Status

The source is located in Dekalb County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Dekalb County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21. See the State Rule Applicability for the source section.

(b) Dekalb County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21. See the State Rule Applicability for the source section.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source, is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) each criteria pollutant is less than 100 tons per year,
(b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
(c) any combination of HAPs is less than 25 tons/year.

This status is based on all the air approvals issued to the source.

Federal Rule Applicability

(a) The storage tanks at this source storing volatile organic liquids are not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984), as these have storage capacities of less than 40 cubic meters. The storage tanks with capacities over 40 m^3 store hydrochloric acid, which is not a volatile organic liquid.

(b) This source, which processes Glycol Ether, a listed chemical in Table 2 of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, Subpart F (National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry), is not a major source of HAPs, as defined in Section 112(a) of the Clean Air Act. Therefore, according to 40 CFR 63.100(b)(3), it is not subject to the requirements of this Subpart.

(c) This source, which stores and handles Glycol Ether, is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, Subpart G (National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater), is not subject to Subpart F. Therefore, according to 40 CFR 63.110(a), it is not subject to the requirements of Subpart G.

State Rule Applicability - Entire Source

326 IAC 2-6 (Emission Reporting)

This source is located in Dekalb County and the potential to emit of all pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 2-2 (Prevention of Significant Deterioration)

The potential to emit of all criteria pollutants from this source is less than 250 tons per year and it is not one of the 28 listed source categories. Therefore, 326 IAC 2-2 does not apply.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of this operation will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9

or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 8-9-1 (Volatile Organic Liquid Storage Vessels)

The tanks at this source are not subject to this rule, since the source is not located in any of the listed counties in this rule.

326 IAC 8-1-6 (General Provisions Relating to VOC Rules: General Reduction Requirements for New Facilities).

All the emission units at this source have potential VOC emissions of less than twenty-five tons per year. Therefore, 326 IAC 8-1-6 does not apply.

Conclusion

The construction and operation of this household cleaning products and calcium and lime removal products formulation and bottling operation shall be subject to the conditions of the Exemption No.: 033-16854-00085.